



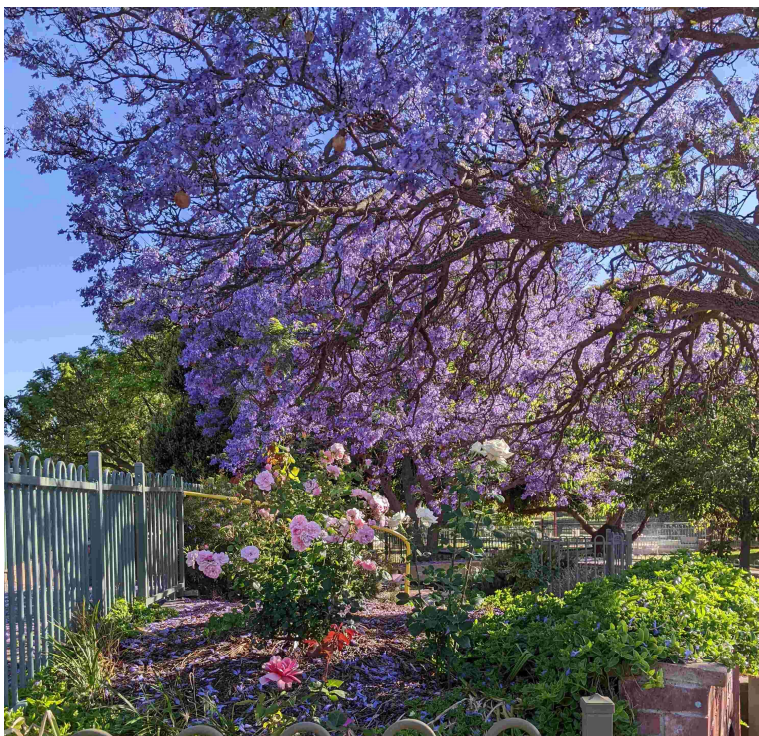
SOUTH AUSTRALIAN SOCIETY of MODEL and EXPERIMENTAL ENGINEERS INC.

"SASMEE PARK", SASMEE LANE, off MILLSWOOD CRESCENT,
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Springtime at SASMEE. With the Jacarandas, roses and daisies the Park is dressed up to its best and looks a picture. True, its only a moment in time – but what a moment!

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EDITORIAL

Communication

Document Register

There are now well over one hundred documents in the document register on the SASMEE Website. These can be accessed at:

<https://sasmee.org.au/sasmee-members-area/document-register/>

Or log onto the website at <https://sasmee.org.au/> , login to the member's area and on the banner, you will find the Document Register.

There is everything there from how the set up the signals to how to cook chips. From how to operate locomotive X33 to how to assess the weather for Public Run Days. From how to fill out an Incident Report to basic metal working skills.

It also has the SASMEE Constitution and Regulations.

These documents have been prepared for the guidance of members. However, they are not infallible, so if you find an error or something is not clear, please advise the Secretary at: secretary.sasmee@gmail.com

Similarly, if you cannot find guidance on a topic and think it would be helpful for the Club to have something, please let me know at:

SASMEE.Librarian@outlook.com

This is a valuable resource provided for the benefit of members and running of SASMEE. Please use it and make yourself familiar with the content.

Note: If you have a printed copy, it is important to cross check on the website to ensure it is the latest version.

PRESIDENT'S REPORT.

Ian Thomas

Greetings to all,

I start out on the progress on the building of the workshop and concrete is down and the steelwork has arrived and we are looking forward to completion.

Thanks again to the building committee for steering this project so far. Our running days are going well and both stations are running smoothly. We have had a good contribution from our younger members and good to see the enthusiasm.

The AGM has been and gone and I would like to thank the outgoing committee and welcome the new committee elected.

Thanks to Mary and Bryan with the running of the canteen with lots of chips being sold and catering for the Halloween runs

Our Halloween weekend was successful and our customers enjoyed the park. The numbers were down as we were competing with the gentleman in the big red suit.

I would like to thank all the people that helped on the weekend to make it a success.

Our boaties are having a good turnout on field days and good to see lots of members enjoying their creations.

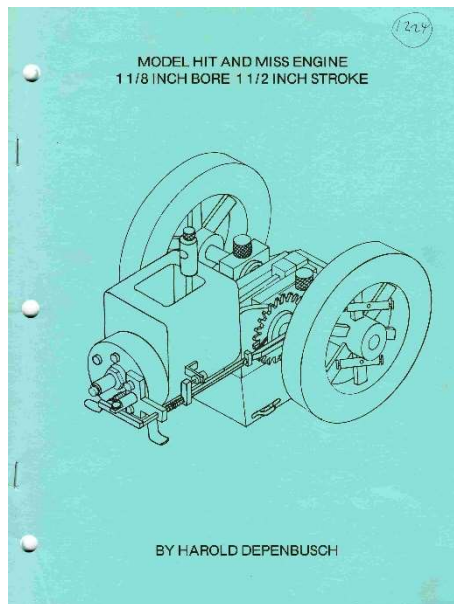
Christmas is coming up and our Christmas run is on 21st of December please notify Mary by the December meeting your numbers for catering for the BBQ.

I wish you all seasons' greetings and safe holidays for the new year.

Best regards Ian Thomas. President 2024/2025

The library is open from 7:00 to 7:45 on General Meeting nights. Also, I generally attend the public run days and Wednesday working bees, so if you are looking for something, please just ask.

Book of the Month



Model Hit and Miss Engine. Howard Depenbusch.

Hit 'N' Miss is a type of stationary internal combustion engine that is controlled by a governor to only fire at a set speed. They are usually 4-stroke, but 2-stroke versions were also made. It was conceived in the late 19th century and produced by various companies from the 1890s through approximately the 1940s. The name comes from the speed control on these engines: they fire ("hit") only when operating at or below a set speed, and cycle without firing ("miss") when they exceed their

set speed. This is as compared to the "throttle-governed" method of speed control. The sound made when the engine is running without a load is a distinctive "Snort POP whoosh whoosh whoosh whoosh snort POP" as the engine fires and then coasts until the speed decreases and it fires again to maintain its average speed. The snorting is caused by the atmospheric intake valve used on many of these engines.

Depenbusch's book contains fully detailed and dimensioned drawings of a reasonably sized model engine. There is also a general description of each assembly, but this does not include much advice on the manufacturing process. Not recommended as a first machining project, but for a more advanced modeller, a really worthwhile challenge.

IN THE WORKSHOP

A New Axle Pump Eccentric Strap for the 5-Inch Gauge Heisler

Alan Thomas

Inspiration and Preparation

During a casual conversation with Allan Wallace about my slow progress on another locomotive of mine, he shared pictures of eccentric straps he had fabricated for one of his locomotive axle-driven water pump. Intrigued, I saved those images, knowing they might inspire a future project. Little did I know, I'd need them sooner than expected! The axle water pump eccentric strap on my Heisler engine had worn out completely, prompting me to embark on the task of crafting a new, improved version using LG2 bronze.

Fabrication Process

Armed with a torch and silver solder, I cut and soldered the bronze pieces to form the basic shape of the eccentric strap. I incorporated blocks for bolted connections, which would allow final assembly once machining was complete.



As I began machining the raw strap, I quickly realized that the block at the bottom sat too low, a consequence of Heisler's small driving wheels. The strap looked more like an arresting hook from a fighter jet than a proper locomotive part.

Realizing my error, I halted work to avoid further wastage.

Determined to salvage the piece, I repositioned the blocks to the front and back of the eccentric, minimising waste and sparing the part from being scrapped.

With the raw strap now in a more workable state, I mounted it in a four-

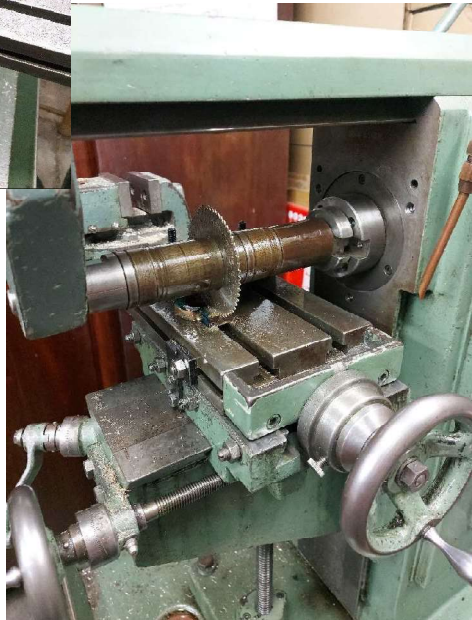


jaw chuck on the lathe and faced one side to create a reference point for future machining operations. I think flipped, face and bored the middle out to suit the existing eccentric. On the milling machine, I squared up the blocks and drilled holes for the M3 bolts that would hold the two halves of the strap together. Precise drilling was critical to ensure a secure and reliable connection.

Final Machining

I carefully cut the eccentric strap into two halves using a horizontally mounted slitting saw on the mill. I bolted the halves together and secured the strap in the lathe's four-jaw chuck for further machining.

Returning to the lathe, I skimmed the face and bored the strap to the precise dimensions needed. After flipping it over, I used a test indicator to ensure perfect alignment before machining the strap's



thickness to its final dimension and adding the necessary features.to its final dimension and adding the necessary features.

Considerations and Finishing Touches

A key lesson from this project was not to skimp on the bronze thickness, as some material is always lost during machining.

Additionally, I case-hardened the mild steel part connected to the ram using Cherry Red, significantly increasing its durability. As a final touch, I installed an oil cup with a brass mesh to keep the strap lubricated, prolonging its life. The cup, held in place by a BA bolt, is removable for easy mesh cleaning.

Conclusion

While there are things I would improve if I were to do it again, this bronze eccentric strap has now served my Heisler locomotive faithfully for over six months and shows no signs of wear.



Tool Feature

Over the last couple of years, a number of interesting tools have been featured. Tools, sometimes for a single job, or sometimes for a particular function. Most, but not all, are home made. So, if you have anything you have made or acquired to solve a particular problem, could you let me know and it will be featured for all members to see? Ed.

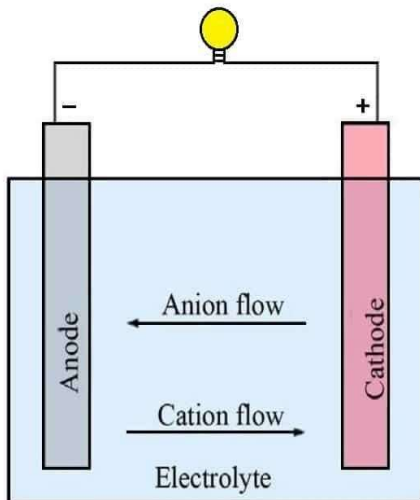
TECHNICAL MATTERS

Not all Batteries are Equal

What is a Battery?

A battery is a device that holds electrical energy in the form of chemicals. With the help of an electrochemical reaction, it converts stored chemical energy into direct current (DC) electrical energy.

The electrochemical reaction in a battery is carried out by moving electrons from one material to another (called electrodes) using an electric current. The first battery was invented in 1800 by Italian physicist Alessandro Volta.



Whether you are an engineer or not, you must have seen at least two different types of batteries that is small batteries and larger batteries. Smaller batteries are used in devices such as watches, alarms, or smoke detectors, while applications such as cars, trucks, or motorcycles, use relatively large rechargeable batteries.

Batteries have become a significant source of energy over the past decade. Moreover, batteries are available in different types and sizes as per their applications. So, we will discuss different types of batteries and their uses, so let's get started.

How Does a Battery Work?

The battery produces electrical energy on demand by using the terminals or electrodes of the battery. The positive terminal is located on the top of

the battery which is used for customer interests such as flashlights and electronics.

The outer case or bottom of the battery is commonly referred to as the negative terminals. Both terminals are very common in all types of batteries. The chemicals that surround these terminals and the battery together form the power cell.

The power cell generates energy whenever the positive and negative terminals are connected to an electrical circuit. For example, the metal part in the flashlight case and the device is on. The chemicals inside the cell (alkaline or lithium) begin a reaction to produce the ions and electrons that power anything attached to the battery.

Classification of Batteries

1. Primary battery
2. Secondary battery

#1 Primary Battery

A primary battery is a simple and convenient source of electricity for many portable electronic devices such as lights, cameras, watches, toys, radios, etc. These types of batteries cannot be recharged once they are exhausted. They are composed of electrochemical cells whose electrochemical reactions cannot be reversed.

Generally, primary batteries are relatively inexpensive, lightweight, and convenient to use, with little or no maintenance. Primary batteries exist in many sizes and forms, ranging from coin cells to AA batteries. These are commonly seen in applications like pacemakers, animal trackers, wristwatches, remote controls, children's toys, etc.

#2 Secondary Battery

Secondary batteries use electrochemical cells whose chemical reactions can be reversed by applying a certain voltage to the battery. It is also known as a rechargeable battery because it can be recharged after the

battery's energy is depleted. They are used as inverters for power supply as well as standalone power sources.

They are also used where it would be too expensive or impractical to use a single charged battery. Small-capacity secondary batteries are used in portable devices such as mobile phones, while heavy-duty batteries are found in electric vehicles and other high drain applications.

Types of Batteries

The following are the **types of batteries** that are explained with their uses:

1. Lead-acid batteries
2. Nickel-cadmium batteries (Ni-Cd)
3. Nickel-metal hybrid batteries (Ni-MH)
4. Lithium-ion batteries (Li-ion)
5. Lithium Polymer (LiPo)
6. Alkaline batteries
7. Zinc-carbon batteries
8. Coin cell batteries
9. Zinc-air cells
10. Sealed lead-acid batteries

#1 Lead-Acid Batteries

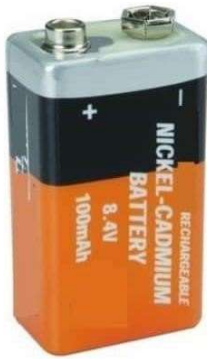


It is a type of rechargeable battery containing lead acid that is much cheaper and is seen in most cars and vehicles to power the lighting system. Lead-acid batteries have a relatively low energy density compared to modern rechargeable batteries.

Despite this, their ability to supply high currents means that the cells have a relatively large power-to-weight ratio. Lead-acid battery capacity is 2V to 24V and is commonly seen as 2V, 6V, 12V, and 24V batteries.

Since they are available at a low cost, providing the high current required by starter motors makes them perfect for use in motor vehicles.

#2 Nickel-cadmium Batteries (Ni-Cd)



Nickel-cadmium battery is also a type of rechargeable battery that uses nickel oxide hydroxide and the metal cadmium as electrodes. One of the main advantages of Ni-Cd batteries is that they can maintain voltage and hold a charge when not in use.

These types of batteries have a terminal voltage that drops almost to the end of the discharge, during a discharge of about 1.2 volts. Although less used these days, they are cheap and have a much lower discharge rate than NiMH batteries.

These are made in various sizes and capacities, from portable sealed to large fanned cells used for standby power and motor power. Smaller packs are used in portable devices, electronics, and toys, while larger packs are used in aircraft starting batteries and electric vehicles.



#3 Nickel-metal Hybrid Batteries (Ni-MH)

It is a rechargeable battery used in everyday electronic devices such as smartphones, laptop computers, and portable power tools. In this type, the chemical reaction at the positive electrode is similar to that of a nickel-

cadmium cell, with both using nickel oxide hydroxide.

Nevertheless, the negative electrodes use a hydrogen-absorbing alloy instead of the cadmium that is used in NiCd batteries. This battery finds application in high-drain devices due to its high capacity and energy

density. They are generally used as an alternative because they have a slightly lower but generally compatible cell voltage.

#4 Lithium-ion Batteries (Li-ion)



These types of batteries are composed of cells in which lithium ions move from the negative electrode through the electrolyte to the positive electrode during discharge and back when it's charging. Lithium-ion batteries are used in heavy electrical

current usage devices such as remote car fobs.

These are widely used batteries that are commonly found in laptops, mobile phones, cameras, etc. Lithium-ion batteries typically have a higher energy density, little or no memory effect, and lower self-discharge than other battery types. They have a longevity of 300 to 500 charge cycles or about two to three years.

5 Lithium Polymer (LiPo) Battery Packs: These packs feature a flexible and lightweight form factor, making them suitable for applications where space and weight are critical factors. LiPo battery packs are utilized in drones, radio-controlled vehicles, and portable consumer electronics due to their high discharge rates and compact design.

#6 Alkaline Batteries

Alkaline batteries convert chemical energy into electrical energy by using manganese dioxide as the positive electrode and a zinc cylinder as the negative electrode to power an external circuit. The rechargeable alkaline battery is designed to be fully charged after repeated use.

It can be used for high- and low-drain devices but can wear out quickly in high-drain devices such as digital cameras. These batteries have a higher energy density and longer life, yet provide similar voltages as zinc-carbon batteries. It can be



hazardous to recharge disposable alkaline batteries, so the user should look closely at its label.

#7 Zinc Carbon Batteries



A zinc-carbon battery provides a direct electric current from the electrochemical reaction between zinc and manganese dioxide in the presence of an electrolyte. These are found in appliances throughout the home, such as the remote control running the thermostat.

They typically offer higher capacity and lower internal resistance than alkaline batteries. In addition, they have improved low-temperature performance, improved leakage resistance, and low self-discharge. Zinc-carbon batteries have a short life cycle and are best suited for low-drain devices.

#8 Coin Cell Batteries



A coin cell battery is a small single-cell battery usually shaped as a squat cylindrical in diameter to resemble a button. These types of batteries have a separator that contact an electrolyte between them, and control the flow of ions that create electricity.

They have a long service life and are found in small portable devices such as watches and pocket calculators. It is made of stainless steel that forms the cell's lower body and positive terminal and a metallic top cap forms the negative terminal. Because they are so consistent and reliable, they are great for use in products that require long, continuous service.

#9 Zinc-air Batteries

Zinc-air batteries typically operate by oxidizing zinc with oxygen from the air. Since they are activated by air, they are ready for use when the oxygen interacts with the zinc in the battery.

They have high energy density and are relatively inexpensive to produce.

They are available in a variety of sizes, from very small button cells for hearing aids to the large batteries used in film cameras. These types of batteries remain active until the power runs out, usually about three years. Benefits of this battery include flat discharge voltage, safety environmental benefits, and low cost.



#10 Sealed Lead-acid Batteries



It is a type of lead-acid battery in which the sulfuric acid electrolyte is condensed (thickened), so it cannot drain out. They are somewhat sealed but have vents if the gases are accidentally released by overcharging. This battery is designed to last up to 12 years.

It can be mounted in any position and does not require regular maintenance. It has a relief valve that is activated when the battery generates hydrogen gas. These types of batteries perform well at high load currents. They are found in motorcycles and allterrain vehicles, wheelchairs, scooters, and boats.

How To Select a Battery?

There are only two features to consider when selecting a battery for your application which are performance and cost. But if we look a little deeper, there are a few more factors that go into choosing the right battery for your application.

Below are some factors to consider when selecting the right type of battery for your use:

#1 Energy Density

Energy density refers to the total amount of energy that can be stored per unit mass or volume. This determines how long your device remains on before it needs a recharge.

#2 Power Density

Power density refers to the maximum rate of energy discharge per unit mass or volume. For example, Low power is ideal for laptops etc. Whereas higher power is suitable for power tools.

#3 Safety

It is vital to ensure that the temperature at which you are making the device will work. In the case of high temperatures, some battery components will break down and may undergo exothermic reactions.

There will be an article on battery safety in the next Bulletin. Ed.

#4 Life Cycle Durability

The long battery life required for most applications needs the stability of the battery's energy density and power density with frequent cycling (charging and discharging).

#5 Cost

It is important that the cost of your battery choice is proportional to its performance and does not abnormally increase the overall cost of the project.

#6 Charging Current

It is defined as the maximum current that can be applied to charge the battery.

#7 Charging Voltage

Charging voltage refers to the maximum voltage that must be applied to the battery in order to charge the battery efficiently.

The commands to go come in two ways. We have a voice tube where the skipper can shout down the pipe, and we can repeat the shout back. Photo 14. The engine room end of the comms to the wheelhouse.



Photo 14 – Speaking tube.

That is generally a split-second warning before the engine room bell is rung via a long steel rod from above. Frequently the call will be “astern” (2 dings of the bell), as a manoeuvre known as springing is often used to cause the vessel to swing about a mooring rope and bring the bow

out. A stop (single ding) tells us to stop engines. This procedure is generally known to us beforehand and so the engine revs are very gentle to avoid snapping the rope. I believe that this system is very similar to that used way back for signalling mine winding houses. Once all lines are called clear by the deckhands, we will get an “ahead” call (one ding. As we gain speed, the reverser can be gradually brought back into the running position notch, and the regulator moved to full open. Sometimes this process can be completely opposite if it is necessary to get off shore by going astern. Once underway the fireman can start feeding the fire, adjusting the water to the boiler, and the engineer can go back to deck level and fill in the departure details in the engine room log. We have tick box sheets for logging all steps in the preparation, and final shutdown processes, as well as a daily log for timing, distance travelled etc etc.

Once the engine is ticking over (best at about 80revs), the exhaust steam gets a second opportunity to be useful. It goes into a tank of about 200li size but a bit stouter. In there is a beautifully formed 2-inch copper pipe coil, through which the incoming feed water from the short



stroke pump goes on its way to the boiler. Photo 15. The inside of the feed water pre-heater showing the copper coil.

Photo 15 – Feed water pre-heater

Thus, the feedwater can be pre-heated to reduce the amount of “sensible heat” needed to get the water toward the

atmospheric boiling point. Depending on how much cold air is whistling in to the engine space, this can be very beneficial. In fact on one occasion our feed water temperature gauge indicates that we were less than 10°C below atmospheric boiling.

Possibly for the next eight or so hours, the engine controls will not be moved. It largely becomes a watch job to make sure everything is doing its job. The deck hands, after doing their daily chores, find various ways to occupy their time, and some demonstrate skills. (Photo 16)



Photo 16 – Fancy Ropework.

One job in particular is to monitor the “poo tanks”. These are a pair of 3000 li tanks down below, and into which all the contents of the five on board toilets go. The toilets have 6li flushes, so theoretically with 1000 flushes per filling, the crew and passengers can have about 25 flushes each. While that might sound a lot, sometimes, the operation of the old-style chain pull flush can result in the feed not closing, and the toilet just

running. Normally, the deckhands are detailed to make periodic checks. However, should one of these failures occur during the night, quite a lot of water can end up in the tanks, with serious consequences if the tanks over flow. My philosophy is that an empty poo tank is a good tank. So, I am a bit persistent at not letting the tanks fill right up. We can check one tank with a float type gauge, and the other with an electronic float gauge, but sometimes, it is unfortunately necessary to unscrew a lid and have a

peer into the depths – fascinating! To keep track of tank levels, generator diesel, and wood stocks, I have developed my own graph paper whereby I can plot the levels. This is very useful when engaging in discussions with the skipper to determine when pumping out of the poo tanks is desirable. For this, we have to take into consideration the locations of the pump-out stations, their pumping ability, whether any are unavailable, and how we can fit these stops into a timetable that often seems to assume the poo tanks have infinite capacity. Some of these pump outs can take up to an hour. Guess who does the pump outs? However, as this happens to be done not far from the galley, we can, and do, suggest occasionally in jest to the Chef that he has a lousy job – everything he does just turns to s...!

For the next few days, it will be an approximation of day one – depart, run, tie up, shut down. At the end of the day, we get to relax, and the passengers will likely visit a museum or a winery, or maybe just go for a walk on shore. The walking can be especially popular should we do a “bush mooring”, where there is no town in sight. Some of these moorings can provide the most mother pleasing sunsets and sunrises, especially if it is dead calm and the river is still. One of the bonuses of being on these cruises! They can also provide, on rare occasions a bit more work for Engineering. Bolted to the stem post (the big lump of timber right at the bow) is a tall pole made of steel pipe. On top is a small weather vane. This is tall so that the people in the wheelhouse can see it. Apart from some assistance with the vector of the actual wind impacting the vessel, it also helps when steering, particularly on long reaches. (Photo 17) Sighting something a long way ahead, and lining the pole on it, provides a useful means of keeping a fairly straight course.



Photo 17 – Weather Vane

However, being tall, and right in the first rank when it comes to hitting things, it sometimes gets entangled in a tree when doing a bush mooring. That sometimes means it gets bent! Mr Engineer and Co, being also Mr Fixit and Co for almost anything, get the job of making it straight again. On at least one occasion, we did this by attaching a line to it via the winch, and pulling it straight. Other times it has to be

unbolted, and get other treatments. One way is to haul it to shore, find a double trunk tree, and use that as a lever fulcrum, together with a couple of strong people shoving under direction. Having seen a similar process (without trees) that was used for manual precision straightening of tube where I worked, I have generally been able to get a pretty good result.

Eventually, after a few of these incidents, the pipe gets weakened just above the securing bolts, and breaks. Then, we just shorten the pole until upstairs complain that they can't see it anymore. Then it is time to go and buy another pipe.

At our nicest cruising speed of 8-10km/hr, we will probably go plus or minus something around 70km per day. So it is quite leisurely, and there is plenty of time to admire the drifting scenery, while still doing our job, and dutifully eating all the goodies dished up to us.

But there can be exceptions, and on this trip we had 'one of those days' at the 356 km mark (measured from the Murray mouth – Mannum is at 150km).

In addition to various other navigation aids on the river, there signs call Skippers Marks. These are a white diagonal cross on a pale blue background. They were put up by skippers of old, and basically, they tell you where the pre lock and weir river channel is. Even today, that is important, because in those places, a nice wide river can be deceptively shallow. We come around a bend to this particular skipper's mark and head from the starboard side of the river to the port side. Part way across we feel slightly uplifted, and come to a dead stop. Seems like the channel has moved. After some attempts at bulldozing our way, with no success, it was time to back off, and let the tender go ahead with a long pole to find the channel. One reason that we could not bulldoze our way was the shape of the hull. At the bow, where the flat bottom joins the side walls, there is a very neat upward curve. In our situation, all that was doing was to enable us to get even further up onto the sand. The other reason was most of the passengers came forward to watch the fun, thereby only increasing our for'd draft. They had to be asked nicely to go a lot further back (astern!).

While the tender was out scouting for the channel, one of my firemen was assisting the deck hands in the tender. By this time, we had laid a line right across the river in an attempt to use the winch to warp us over. That didn't work; however, as the tender drifted under this quite taut line, my fireman stood up on the fore deck of the tender, only to be swept off his feet into the water. That provided a good test for our new fancy life

jackets with a gas cylinder to inflate it. We also discovered when going to fit a new gas cylinder that another perfectly Ok looking part of the mechanism also had to be replaced. Of course we didn't have one of those. Anyway, trying to get across the river tested us all day, and if I recall correctly, we stayed the night, while one of our river people engineered some extra water from the next lock.



Photo 18 – Steam winch

I spent most of the day snuggled down at the winch, with a jerry-rigged protective fence in case the line broke. It did, but most of it went the other way. A point of clarification, occasionally you might hear stories of paddlers riding over sand bars on their



paddles (like large wheels).

Photo 19 – The submerged section of the Marion

Well, on the vessels I have seen, the paddles do not go anywhere near the bottom of the hull. Apart from probably collapsing under the weight of the vessel if they did, there are some general design rules about how deep into the water a paddle should go, how many paddles for a given wheel diameter, and what is an efficient rotational velocity. (Photo 19).

The next morning, we did manage to get across but still had nervous moments going up the next reach (a non-bendy piece of river). We

touched bottom several times, but fortunately only on one side of the vessel. The tilting from this was not too bad down at the engine controls, but must have been a bit more exciting up in the wheelhouse.

After that delay, we had a good run right past the border with NSW. I mentioned the hull during that escapade. Basically, it is a flat bottom, with vertical sides. At the rudder end it has what is called a wine glass stern. Basically, it blends in toward the rudder. This is reputed to aid in the flow of water to the rudder, thereby assisting with steering. It has bulkheads dividing the hull into five compartments. At the bow is the forepeak (although often called other things). That is quite small, and houses the diesel generator, and its fuel tank. Next is the wood hold, which has a non-bulkhead divider in it to minimise the tendency to over fill.

Following that is the stoke hold, which, not surprisingly has the boiler and some of the auxiliaries in it. Included here is a cold-water tank fed from the river, which also doubles as the smokebox saddle. The injector and short stroke pump get water from here. In the pipe from the sea cock to this tank, there is a water meter. It has a small magnet and a reed switch which sends a signal to a chemical dosing pump after a number of revolutions. The dosing pump provides a chemical dose in predetermined lots, and feeds it into the cold-water tank. This provides

the water treatment required to keep the boiler properly protected from corrosion. We mix alkaline agents, tannin, and a chemical which is supposed to help protect the steam pipework. This mix resides in a 90li wheely bin without the wheelies.



Photo 20 – Smokebox tubeplate

It has an electrically driven propeller in it to help keep the mix (particularly the tannin), from settling out. We operate that once day.

As an aside, a photo inside the boiler just after dropping the water for an inspection shows, I think, why dry storage of steel boilers is fraught with danger. You will see what look like a lot of LEDs shining. They are actually drops of distilled water.



This happens when the boiler is emptied, and the water is still warm.

**Photo 21 – Tube end of the firebox.
Note crown support bars.**

When pressure is all gone, the boiler, even if it is warm, is now filled with water vapour at atmospheric

pressure – Rel Humidity about 99%.

As it cools down, some of that water condenses on the boiler plate and tubes, and as it does so, allows air into the boiler to make up for the contraction due to water vapour condensing. This leaves the boiler a bit like a hot night in a tropical forest. Distilled water is sometimes called the universal solvent, and with good cause. It is very enthusiastic to bond with things like boiler plate, aided and abetted by the oxygen entering with the air. Left alone, this will generate craters in the metal – not a good thing.

After that comes the middle hold. It has a couple of fridges for drinks, the poo tanks, the mains water tanks, the hot water tanks, the fridge unit for the cool room, the digester for galley wet scraps, and storage for beverages sold at the licenced bar.

At the stern is the last space, sometimes called the stern void, and I believe more correctly the lazarette, although that might be a sailing ship term. It used to be largely empty, but with more recent additional means of escape is sometimes used by more agile crew as their cabin.

In between the bigger events on the cruise, we were presented with a lot of water destined for the boiler being flung around the stoke hold. We eventually found a leaking pipe almost hard up against the smokebox. Fortunately, my fireman who tested the life jacked was a plumber by trade, and with a fair bit of effort, the leak was plugged enough to keep us going. That incidentally resulted in a small group of our engineering fraternity spending a weekend cutting, bending, screwing, and fitting a lot of new piping in that area of the stokehold.

I know this is beginning to seem like the cruise from hell, but it wasn't really. There were many good points, we just tend to not remember them as well as the others. You don't get to dine out with a story that just says everything worked perfectly! Boar -ring!

On the good side, and from other cruises: I was once presented with a passenger whose spectacle frame had broken. By using some stiff copper wire as a splint, and a piece of shrink tube as a bandage over the break, the customer went away happy. Another spectacle failure was remedied when my super small screw drivers enabled the pivot pin to be re-tightened. On yet another cruise, while tied up near a caravan park, a caravan-er came to us with a broken part of his van's under carriage – could we help. Well yes, we could, and after making him understand that the repair was going to be very temporary (to get him to a repair shop!) due to the unknown grade of steel, we brought out the electric welder and fixed him up.

On another occasion at Blanchetown, we saw a fishing dingy with a very spluttery outboard, which failed with it dangerously close to the upstream side of the Lock 1 weir. We launched our tender and went and rescued it and its crew. A long time ago at Mannum, we used the tender to grab a crewless expensive looking speed boat drifting down river. We debated whether we could claim salvage rights – but didn't! All good fun. Having spent a lot of word digressing, we are now approaching the 677 km mark, a place called Warrakoo somewhere well above lock 6. At this place, the river is wide and shallow, with the channel hard up against the starboard shore. To make matters worse, there is a large snag across part of this narrow channel. Well, try as we did, using ropes and pulleys, the tender, and the winch, we could not get past the snag. However, if the river was a wee bit deeper, we might just make it. Another day was ending, and once again our river man talked nicely to the next lock master, who was able to let some extra water down during the night. This is not a common thing to do, but the people working on the river do have a very soft spot for the old heritage vessels. Of course everyone wanted to stay up all night to help, but reason eventually prevailed, and only I sat up most of the night keeping pressure up, so that my other two engine room people could rest and take over at first light. Someone had stuck a piece of electrical tape on a twig sticking out of the water, and I spent a lot of time trying to discern if the water was actually coming up. Very very slowly it did, and as soon as my men appeared I went off to catch some sleep. I hadn't actually got to sleep before I heard the comforting sound of the big gear going ahead. My cabin was right above it! The moment was almost immediately ruined with a lurch and the gear going astern. Bugger. Fortunately, this was only a temporary setback, and the crew got the Marion into good water after a couple of shunts. We were a long way behind time, and we had to be at Lock 9 that

evening for a barbecue with the PS Ruby. I never thought I would ever see the time when we would pass through three locks in one day. But to the credit of all the crew, especially my two firemen the wheelhouse crew, and of course our Chef, and his crew, we made it to the barbecue just as last light began to fade, going through lock 7, 8, and 9 in one very long day.

Our skipper later told me, that before we had even left Mannum, he had serious doubts that we would make it to Wentworth. It actually gave me, and I hope, the rest of the crew, a nice warm feeling that we had prevailed. Made us feel a bit like the river people of a bygone age. Next morning on the way to Wentworth, we were running side by side the PS Ruby, and it allowed the opportunity for some of the crew, including my plumber to swap ships for a while. A day without any deleterious events. It was highlighted by a short cruise up the Darling River with both Ruby and Marion going along for the ride. This was followed by a lash up dinner to celebrate Marions 120th, and Ruby's 110th birthdays.

While not part of the business of describing the role of the engineer and his firemen, I do wish to briefly comment on the return cruise back as far as Morgan. I had asked the Chairman of our Board if it might be possible to get Mary a gig on the return, as she had never managed to crew the Wentworth to Renmark section. It turned out that that there were plenty of crew, but one cabin free. Generously he allowed Mary to take that cabin, and then said I might as well come along too. That meant being passengers! Now as some of you would know, Mary can be quite chatty at times, and so she did a lot of it with the other passengers – plenty of time for that.

In one of those conversations she said, along the lines of – “Bryan often makes a video of the cruises”. Well, that is only partly true, as the job of engineer doesn't allow the time to do much other than odd bits of film and pictures. However, on hearing this statement, a couple of passengers asked if they could get a copy of said video. Before I even knew I was doing it, she had about a dozen orders! So much for occupying a deck chair for several days! Anyway, I had the gear, and was actually intending to do a video, so no love lost. Some of it got me out into the tender for waterline shots, but a lot was passenger inter actions, which would be lost to some degree on anyone not actually there. As it turned out, we had a fantastic group of passengers who really interacted and made the cruise just great fun – even though the

weather went from very hot, to cold deluge, and back to hot again. The end result was a lot of editing, including watching the whole hour-long production from end to end many times, before Mary and I were happy to burn a final copy onto DVD's. We had many positive replies after we posted out the ordered DVDs.

A final (at last they said!) comment on nautical terms. The river does use quite a few well-known nautical terms, but, I suspect from a history of having many landlubbers as crew, some more basic terms are also there. You will have seen where I have used nautical terms that are used on the river. But there are some others that possibly are not salt water. The wind sailors may correct me, but when they do a significant change in direction, they "come about". On the river, we "round up". One skipper is quite firm in telling the passengers that is what we do when we want to change from going upstream to downstream, and, we DO NOT "crack a Uee". In the ropes business, I believe at sea if a mooring rope (can be called a "hawser" or "line") is fixed at one end to the vessel, goes out around a mooring device and then is secured back on the vessel, it is referred to as a "bight". A bight being a loop in a rope. On the river, more clearly, we think, this is called a "return line", which everyone understands. Mooring ropes are called "lines". In one of our

crew manuals, there are 2 ½ pages of nautical terms!



If perchance you have managed to grind your way through this dissertation, I can recommend being a volunteer on the Marion, or being a passenger on an

overnight cruise. The "Mighty Murray" might only be so in length, but is can be a magical place to spend time. We have two other volunteer operated vessels, the diesel-powered Mayflower in Mannum, and the still under reconstruction steam powered Canally, that will work out of

Morgan. Both of these are mostly day cruise vessels, leaving Marion the one for long trips.

CLUB ACTIVITIES

Royal Show

This year there were exhibits from Clare and Morphett Vale Clubs as well as SASMEE. A lot of interest from the public shows that it is a very worthwhile exercise. The display was co-ordinated by John Monteodorisio.



Rachel Brougham, one of the many volunteers who attended the display, talking to the public.



John Monteodorisio's 5" EL Class Locomotive
(SASMEE)



Andrew Davies'
7 ¼ Cattle Van.
(MVR)



David Bryker's
7¼ Tram Billie,
(SASMEE)



**Dean
Manderson's 7 ¼
Tich**
(Clare Model
Engineers)



**Ian McBain's 7
¼ Delabole**
(MVR)

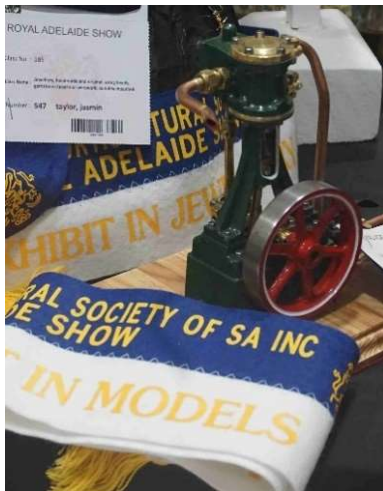


Jeff Hague's 7 ¼ Southern. (MVR)



Rachel Brougham's 5" Bertie.

(SASMEE)



Tony Schick won the "Best in Show" for his

Stuart Turner 10V Steam Engine.

(SASMEE)

Boaties Regatta

The Boaties Regatta was held on Sunday 29th September.

The weather was beautiful, just right for a sail on the pond. As it was winter the event started at 1000 hrs with lunch at 1230 hrs.

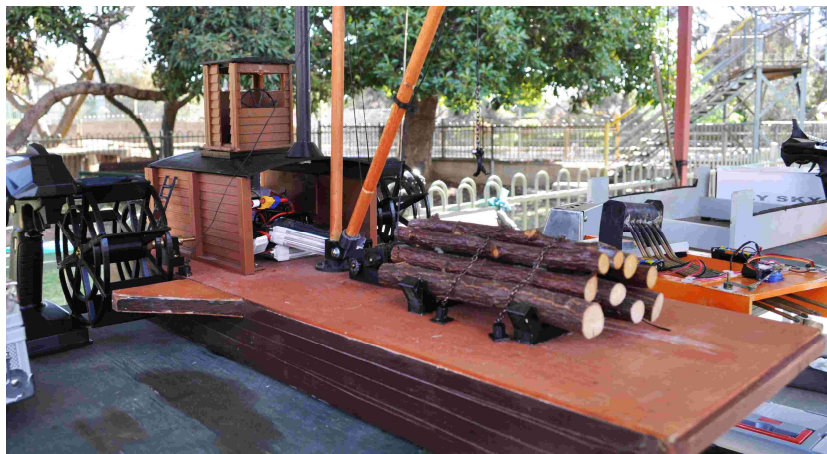
As usual, a wide range of boats present – but no Putt-Putts this year. We'll have to work on that!



Some of the vessels ready to take to the waterway.



Trevor Morcom's new freighter.



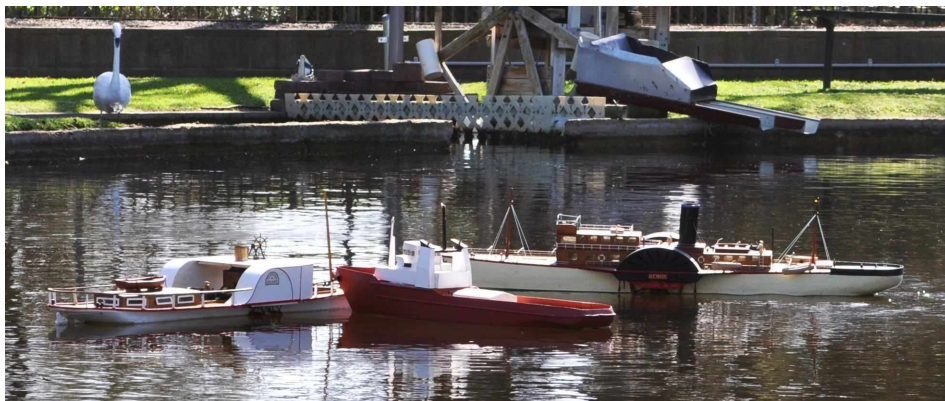
John Foster's paddle barge.



Allan Wallace



Bob Smith's yacht



Who has right of way??



More Boats

Halloween

Because Halloween fell on a Thursday this year, it came to SASMEE on Saturday 2nd of November. Unfortunately, this clashed with the Pageant and the weather was pretty hot, so numbers were down of last year. Two sessions 1300 – 1530 and 1900 – 2130 were run. A lot of members put in a huge effort to bring in altogether.



It is hard to pick out individual members, but a big thanks to Toni and Michael Offler, Rachel Brougham and Rohan Garrard for much of the preparation and decoration of the park.



**The Welcoming
Committee -**

David, Trevor and Friend



Some of the Characters



Delicious Dinner



Training Day



On the 15th of September, there were two training presentations. Michael Moyse gave a very detailed description in the Clubrooms of the SASMEE signalling system.

This was followed up by a practical demonstration of various signals throughout the Park.



Allan Wallace gave a presentation on riding car inspections. This was followed by a practical demonstration of various tests performed on riding cars to assess their suitability for operations.

The aim is to hold training days twice per year on various topics.



Unley High School Visit



On Wednesday 6th November, the Club had a visit of teachers and students from Unley High School. Approximately forty students attended. The objective was to undertake some practical mathematics. Activities included:

- Calculating the volume of the boat pond,
- Calculating the number of sleepers in the track,
- Testing and calculating the axle loads of riding cars under various loads,
- Measuring the drawbar pull and calculating the power required,
- Measuring the time and distance and calculating the average speed of a train.
- Measuring the versine and calculating the radius of curves,
- Calculating the energy used and efficiency of an operating stationary steam engine,

- Measuring and calculating the area of a tunnel entrance.

The students broke into groups of four and rotated through various activities.

It turned out to be a very instructive and enjoyable day for all.

Buy and Sell

This has now been shifted to the SASMEE Website. Under the ABOUT SASMEE Tab. No password required.

If you have anything in the workshop and model engineering area that you would like to buy or sell, please let me know.

Keep monitoring this site. There is a lot of good stuff.

Up and Running

Since the last Bulletin, Public Run Days were held on the 1st and 21st of September, 6th and 19th October and 3rd of November. The scheduled run day for the 16th of November was cancelled due to hot weather. There was the SASMEE Training Day on the 15th October. Boaties Regatta on Sunday 29th September. Halloween was held on Saturday 2nd November.

Here are some selected details.

The Run Day on the 1st September had the following activities:

5", 7 1/4"

- | | |
|-----------|------------------------------------|
| • X33 | Ashley Roocroft/Paul Hefford Guard |
| • Sooty | Rohan Garrard |
| • LMS 831 | John Brougham |

On the 3 1/2", 5" track were:

- | | |
|--------------|---------------|
| • Black 5 | Allan Wallace |
| • Apprentice | Jake Bott |
| • 509 | John Mere |

On the pond were:

- | | |
|--------------------------|----------------|
| • Pride of Firth | Bob Smith |
| • Airboat Skimmer | John Foster |
| • Mentida 111 | Michael Offler |
| • Excellent | Fiona Cockburn |
| • Mila | Di Cockburn |
| • Firefly | Peter Cockburn |
| • Tubby Tugger, Workboat | John Clayfield |
| • Tug boat Amsterdam | Di Sanders |

On the Garden Railway

- K27 Class #453, Mogul #22, C19 Class #40
Alex Dyson-Smith

On the stations were Toni Offler, Richard Sanders and Kingsley Martin.

Michael Moyse attended the Steam House.

In the Canteen were Mary Homann, Di Watkin and Bryan Homann.

On the gate was David Hawkins, Trevor Morcom and Sophie Cockburn.

Rachel Brougham was the Safety Officer.

The Run Day on 19th October had the following contributions:

5" 7 ¼"

- | | |
|---------|---|
| • Sooty | Rohan Garrard/Xavier O'Loughlin
Guard. |
| • 351 | David Bryker. |
| • X33 | Ainsley Cuthbertson. |

On the 3 ½" 5" track were:

- | | |
|----------------|---------------|
| • Pennsylvania | John Mere |
| • Black 5 | Allan Wallace |
| • Smiley | James Rault |
| • Heisler | Alan Thomas |
| • Apprentice | Jake Bott |

- NSU 57
- 900

Kingsley Martin
Bob Smith

Some of the boats on the pond were:

- | | |
|---------------------|----------------|
| • Gurnara, Stilleto | Michael Offler |
| • P 1011 | Mike Turner |
| • Grenadier | Alan Saunders |
| • SASMEE Fast Ferry | John Clayfield |
| • MFV 1567 | Michael Priest |

On the Garden Railway

- The garden railway did not run

On the stations were Enzo Greco, Robin Hefford, Toni Offler and Henry O'Neill.

In the Canteen were Mary Homann, Di Watkin and Graham Gaetjens.

On the gate was Alan Thomas.

Safety Officer was Max Shuard.

The Run Day on the 3rd November had the following activities:

5", 7 1/4"

- | | |
|----------|-------------------------------------|
| • Sooty | Cameron Dicker/Guard Rohan Garrard. |
| • Mallet | Ian Thomas |

On the 3 1/2", 5" track were:

- | | |
|--------------|---------------------|
| • 457 | Simon Lindsay |
| • Black 5 | Allan Wallace |
| • Apprentice | Ainsley Cuthbertson |
| • Heisler | Alan Thomas |
| • NSU 57 | Kingsley Martin |

On the pond were:

- | | |
|---------------------|----------------|
| • Zwarteze | Mike Turner |
| • Drogher, Airboat | John Foster |
| • Cranborne, P 1011 | Bob Smith |
| • MTB | Enzo Greco |
| • Patricia | John Clayfield |

On the Garden Railway

- | | |
|----------------------|------------|
| • Thomas and Friends | Max Shuard |
|----------------------|------------|

On the stations were Dianne Sanders, Richard Sanders, Brenton Dicker.

Michael Moyse attended the Steam House.

In the Canteen were Mary Homann, Di Watkin and Bryan Homann.

On the gate was David Hawkins.

Geoff Hall was the Safety Officer.

Meetings

All General Meetings were held in the club rooms on the second Tuesday of the month. All meeting were held in the Clubrooms.

After the September meeting Tony Schick gave a very interesting talk on his ball nose end mill sharpening fixture which he designed on CAD, cast and machined.

After the October meeting, Bryan Homann showed some short vintage movies of steam locomotive manufacture.

The Annual Auction was held after the November General meeting.

Efforts are being made to provide interesting and topical talks after each General Meeting. If you have any ideas, requests (or better still!) offers. Please let me know. Ed.

SASMEE PROJECTS

Painting.

Geoff Hall and Daniel O'Neill have been painting the 5" Station and the 7¼ Carriage shed. Graham Gaetjens, Philip Edmonds and Robin Baker have placed some guttering on Fort Knox. Thanks guys.

Workshop



Since the pouring of the floor slab on Wednesday 24th July a lot of all the action has been at Navitus' depot.

Here are some selected pictures of the progress.

Hundreds of brackets required.

Columns and curved roof beams





Painting!



Erecting the Columns

SASMEE BUSINESS

Lease

At SASMEE's request, the lease for SASMEE Park has been extended by one year. This is because the Club wishes to renegotiate several aspects of the lease. These include:

- The lease duration. Currently it is five years.
- Park management including trees and fences.
- The appropriateness of the Retail Act, upon which the existing lease is based. This puts a number of obligations upon SASMEE not appropriate to a volunteer organization.

The submission can be viewed in the Members' area under Archive.

Changes to Insurance

Previously AALS held insurance for Boiler Inspectors and the Competent Person. AALS no longer provides this umbrella service and SASMEE has taken out the appropriate insurance.

The effect of this is that each club will need to take out insurance to cover visiting boiler inspectors if that club does not have the service in house.

Bee Hive



A hive of bees have set up home in a tree near the 5" station.

Josh, the friendly local apiarist, has undertaken to shift them. The ingenious system is to put a cone over the existing hive so the bees can get out but not find their way back in. Provide them with alternative lodgings next door (the

white box) and once the queen has moved in, take them away. This will take a couple of weeks, so please be careful when in that area.

New Members

Since the last Bulletin SASMEE has gained these new members:

Ida Chi Mei Yu

September 2024



Max joined SASMEE on the 11th of December 2001.

Initially Max was a very busy Garden Gauge Railway worker, and was conspicuous with his activities in beautifying that location with gardens and pavers.

His early dedication towards the training of members began to show when he purchased a rundown

“Blowfly” model locomotive. During discussion about the boiler, a scheme began to be generated whereby the loco might be able to be used as a training aid for new model loco drivers. A combination of the time it takes to work on a steam loco restoration, and the disruption caused by the Covid outbreak saw this project sent very much to the back burner. It was however able to assist Max in his own endeavours to become a loco driver.

Allied to this, many new members have been made to feel very welcome in SASMEE due to Max helping them get to know other members with similar interests.

In the pre-Covid period, Max also took over the role of Club Librarian. Apart from starting the process of getting a digital index of titles well on the way, Max was notable in promoting the library with his “book of the month” presentation at the General Meetings. At the same time he also assumed the role of Bulletin editor, a task, together with that of Librarian, he still carries out with aplomb.

However, it was after he was elected to the position of Secretary that his talents really began to shine. Covid forced additional bureaucracy on the Club, and this together with issues arising out of insurance cause a lot of grief for the Committee of the time. In fact, due to insurance we were very close to having to close down any public operations.

However, Max was very instrumental in dealing with the to and fro letters and emails relating to AALS and the insurance companies. His word-smithing abilities, and cool analytic head enabled the Club to emerge from that crisis with two major benefits. The first was a more affordable insurance. The second was a very much improved relationship with the AALS, and which actually caused that organisation to review some of its rules.

As that set of issues faded, SASMEE was awarded a large grant from the State Government to build a new workshop. As it turned out, getting the grant turned out to be the easy bit. The grant more or less coincided with a new set of bureaucracy required to gain approval to build. Here again, Max's efforts materially assisted the process of navigating the uncharted (to us) waters of approval getting.

While all this was going on, Max also diligently created our Document Management system, and has doggedly continued to remind us that it is there for all to see on the Website, and to use in the field. This system has become necessary to assist in safely operating the Club open days in such a way as to reduce both the occurrence, and especially recurrence, of incidents that may result in injury or insurance claims.

While there were other very valuable contributors to the dealing of these issues, we could not have had a more suitable candidate as Secretary during those trying times.

As President and latterly Vice President, for all of Max's Secretarial term, I know that without his contributions, we would have struggled mightily with the above-mentioned issues and projects.

REMINDERS!!

Food Safety Course

There is a very good food safety training course online at:

<https://dofoodsafely.health.vic.gov.au/index.php/en/>

Anyone involved with the Canteen is encouraged to undertake this course. It covers the basics and gives good advice on food handling for public areas.

Working with Children

And for those who still haven't undertaken their "Working with Children" clearances, these are still necessary, so please get on the case.

You will soon receive some explanatory notes on this issue. It is vital SASMEE has up to date information.

Sign In Requirements

It is a requirement to sign the attendance book whenever you are on site at SASMEE. This is an important requirement of the SASMEE insurance and failing to sign in may mean you are not covered in the event of an incident or accident.

Note that you are now asked to enter the time of arrival and the time of leaving.

So please remember to sign in whenever you are at the park, even if there for only a short time.

ELECTED MEMBERS 2024/2025

Below are listed the elected members.

President	Ian Thomas
Vice President	Bryan Homann
Secretary	Alan Thomas
Treasurer	Mary Homann
Asst Treasurer	Richard Sanders
Safety Co-ordinator	Rachel Brougham

Councillors

Jake Bott

John Mere

Ashley Roocroft

Position	Name
Public Officer	Alan Saunders
Competent Person AALS	Allan Wallace
Minute Secretary	David Hawkins
Canteen Managers	Bryan & Mary Homann
Track Officers	John Mere, Cameron Dicker, Rohan Garrard
Track Signals	Michael Moyse, Peter Cockburn
Coal Monitor	John Mere
Rolling Stock Inspector	Ian Thomas, John Mere.
Boiler Inspectors	Bryan Homann, Simon Huntington, John Monteodorisio, Allan Wallace
Auditors	Graham Gaetjens, Michael Moyse
Fire Warden	Rachael Brougham
Building Maintenance	Geoff Hall
Rubbish Collection	David Hawkins, Mathew Longman
Librarian	Max Shuard, Mike Turner, John Monteodorisio
Bulletin Editor	Max Shuard
Pond	John Foster
Try booking	Alan Thomas
Garden Railway	Max Shuard
Boiler House Manager	Bryan Homann & Michael Moyse
Driver Trainer/Assessors	John Mere, Rohan Garrard
Facebook Moderators	Alan Thomas, Ian Thomas
Workshop Steering Committee	Bryan Homann, Alan Thomas, Max Shuard
Unley Council liaison	Max Shuard & Secretary